



## Fire Program Analysis – Preparedness Module Defining a Common Attribute

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Date: January 31, 2005 Revised: July 27, 2005

**Topic:** Common currency for the Expert Opinion Weight Elicitation Process (EOWEP)

**Issue:** FPA needs a common currency in the weighting system to facilitate the budget formulation and allocation process. The common currency should have an attribute that has one commonly accepted definition and that most Fire Planning Units (FPU) will have at least one acre. Implementing a common attribute among all FPUs greatly simplifies the process and allows for a meaningful comparison of cost and effectiveness among FPUs.

**Background:** Reading the paper describing EOWEP developed by Rideout and Ziesler (2004) might be helpful in both understanding the issue and the resolution presented. For more information on EOWEP see <http://taurus.cnr.colostate.edu/projects/fel/index.cfm>.

After completing several weighting exercises with the prototype units, an attribute labeled 'WUI' often had the highest implicit attribute price. Further examination revealed the prototypes used different WUI definitions and rationales. The FPA development team recognized the need for a common attribute to facilitate the budget formulation and allocation process and came up with several approaches.

After additional research into WUI definitions, the work done at the University of Wisconsin-Madison will best meet FPA efforts. The University's Spatial Analysis for Conservation and Sustainability (SILVIS), has developed an ARC-IMS (ESRI) GIS data layer that maps WUI across conterminous 48 states. Their definition for WUI is based on the Federal Register and the California Fire Alliance. See their website for further details:

[http://www.silvis.forest.wisc.edu/projects/WUI\\_Main.asp](http://www.silvis.forest.wisc.edu/projects/WUI_Main.asp)

**Decision:** The FPA Steering Committee, with concurrence from the National Association of State Foresters, has adopted the SILVIS definition, descriptions and map products of WUI for use in all FPUs as the common currency in FPA weighting process. The SILVIS definition will not supplant the definition of WUI used by any agency or state for other purposes (e.g. Healthy Forests Restoration Act). **All FPUs will use WUI, with an implicit attribute price of one (1.0) for protection at all FILs in their weighting process.**

**Key Points:** The WUI definition as applied in the FPA analysis is made up of all acres in an FPU that meet at least one of the Interface and Intermix definitions below:

### **Intermix**

- Density: At least one house per 40 Acres (16 ha)
- Vegetation: at least 50% wildland vegetated

## Interface

- Density: At least one house per 40 Acres (16 ha)
- Vegetation: less than 50% wildland vegetated and within the buffer distance
- Buffer: within 1.5 miles of wildland (>75% wildland vegetated)

As per the weighting process, only acres within the FPU should be counted as WUI and acres outside of the FPU should not be analyzed. The WUI definition is not meant to capture every structure within the FPU that is worthy of a fire protection response. The FPU may choose to define additional attributes for important structures such as lodges, administration buildings, historical sites, etc.

FPA recognizes that FPUs might have better or more up to date data, and that the SILVIS coverage does not cover lands outside of the conterminous 48 states. In those cases, local fire planning units can use current local data to calculate their WUI acres as long as it fits the criteria defined in this paper and the source data is authoritative (e.g. housing density supported by County Assessor records). However, the SILVIS application will be the default and authoritative source for those units that do not have better data.

## Recommendations for Implementation:

To determine if the area in question is considered WUI, the following steps are recommended:

1. Is there a minimum density of one house per 40 acres?
  - a. If yes, continue.
  - b. If no, STOP, the area in question is not WUI.
2. Is wildland vegetation covering more than 50% of the area in question?
  - a. If more than 50% wildland vegetation coverage, STOP, the area is Intermix. Count as WUI.
  - b. If less than 50% coverage, continue.
3. Is the area in question within 1.5 miles from an area that is at least 75% wildland vegetated?
  - a. If yes, STOP, the area in question is Interface. Count as WUI.
  - b. If not, STOP, the area in question is not WUI.

To capture the importance (e.g. the sensitivity) of federal land not meeting the SILVIS definition, a “Proximity to WUI” attribute (or any other attribute) may be created for Federal lands next to WUI that do not conform to the SILVIS definition. These acres can be weighted the same as WUI (1.0) to emphasize that this attribute has the same importance as the SILVIS defined WUI.

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For more project information, see the FPA web site: <http://fpa.nifc.gov>